# The Role of Epsitemological Belief and Self Regulation in Academic Procrastination of Muslim College Students

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**Abstract**

The study on academic procrastination can help educators and educational developers in avoiding the lack of success and even failure in the educational process. This study aims to examine the effect of believe about knowledge, believe about learning and self-regulation in learning on academic procrastination. This quantitative study involves 277 college students. The data collection technique used in this study is a questionnaire in the form of a scale. There are four types of scales used in the data collection process: the scale of believe about knowledge, the scale believe about learning, the scale of self-regulation in learning and the scale of academic procrastination. Data analysis technique using structural equation technique. The results show that belief about knowledge has an effect on self-regulation in learning (r = .157, p = .028), belief about knowledge affects academic procrastination (r = -.157, p = .000), belief about learning affects self-regulation in learning (r = .199, p = .040), belief about learning affects academic procrastination (r = -.147, p = .019), and self-regulation in learning affects significant negatively to academic procrastination (r = -.097, p = .030).

## INTRODUCTION

Understanding why people who generally have the best effort for completing academic assignments and professional assignments fail to complete them on time has been an eternal focus of research in psychology, education, and procrastination (Hailikari et al., 2021). The uncertainty regarding procrastination has resulted in various studies due to low psychological factors such as self-efficacy (Liu et al., 2020; Qiuzhu, 2016), affective states including shame and guilt (Oflazian & Borders, 2022), one's characteristics such as dependence (Johnson et al., 2000), locus of control includes intrinsic and extrinsic motivation (Batubara, 2017; Carden et al., 2004), control system (Mao et al., 2022; van Eerde & Venus, 2018), role conflict (Senécal et al., 2003), social activities (Jackson et al., 2003), personality roles (Lee et al., 2006), situational characteristics and traits (Hockey, 1983), and self-regulation (Steel, 2007; Syapira et al., 2022; Ziegler & Opdenakker, 2018).

Steel (2007) noted that procrastination is a common phenomenon and some people have made it as a way of life. Ferrari (2017) emphasized, 20% of men and women are clinical procrastinators, at school, home, work, and in relationships. Although often considered as a minor problem, clinical procrastination is not a bad time management problem. Thus, it can be concluded that procrastination is quite widespread, and sometimes ends with a level of depression or psychological disorders. Whether it is a serious psychological disorder or not, it

seems that in an achievement-oriented society in which people are faced with major changes and are required to pursue the latest advances, procrastination can become an important problem (Rahman, 2020; van Eerde, 2003). It is assumed that a number of college students (80-85%) of various levels are involved in procrastination (Eisenbeck et al., 2019), 60% of students procrastinate doing their assignments (Onwuegbuzie & Jiao, 2000); 40% to 60% of students report that they almost always procrastinate writing papers, preparing for exams, and completing weekly reading assignments (Onwuegbuzie, 2004). Balkıs & Duru (2009), also reported that 23% of students procrastinate their academic assignments.

A delay is said to be procrastination, if it is carried out on an important task, done repeatedly intentionally and causes feelings of discomfort, subjectively felt by a procrastinator (Eisenbeck et al., 2019), while Milgram (1991) said that procrastination is a specific behavior which includes: (1) a behavior which involves an element of procrastination, either to start or complete a task or activity, (2) produces other further effects, such as lateness in completing tasks or failure to do tasks, ( 3) involves a task perceived by procrastinators as an important task to do, for example office work, school work, or chores, (4) produces unpleasant emotional states, such as feelings of anxiety, guilt, anger, panic, and so on.

Historically, procrastination research has focused on cognitive behavioral factors from a motivational perspective. For example, Steel (2007) reported that there are differences in academic motivation and learning habits in underachieving and high-achieving students. High-achieving students tend to delay doing tasks which are considered difficult and prone to bother enjoying activities such as engaging in social activity opportunities. Underachieving students share the same talents as high-achieving students, high-achieving students differ in attitude and tend to need external pressure to fulfill assignments. It can be emphasized that procrastination is predominantly a cognitive-behavioral problem as opposed to a lack of learning habits. Meanwhile Alblwi et el. (2020) that the procrastination factor due to the fear of failure and reluctance to do the task became the most counted portion. Both factors correlate with mental health and interpersonal factors.

The past 30 years of research on academic procrastination and other forms of procrastination have been examined from various perspectives. The exploration of procrastination associated with metacognitive perspectives, mental health, motivation and self-regulation in learning has received potential explanations and various results. Based on a variety of potential explanations for procrastination, it is proved that there is not much to be explored. The relationship between college students' epistemological belief and academic procrastination do not seem to have been studied much and is assumed to be able to reveal a deeper understanding of the factors associated with unproductive academic achievement. According to Schommer (2004; 1990) about the importance of epistemological belief on learning process which is assumed to be able to explain psychological dynamics of problematic academic phenomenon.

Epistemology is a branch of philosophy which investigates the authenticity of definition, structure, method, and knowledge validity. The traditional philosophy of personally epistemological paradigm emphasizes the relationship between the perceiver or the knower and what is felt and can be known (Ren, 2006). The study of epistemology is originally a part of philosophy which discusses philosophical problems about the theory of science. However, the study of epistemology has also recently become an interesting problem to be studied by psychologists in empirical research (Hofer, 2001).

According to Schommer (2004), Perry's research with Harvard Scholars in the late 1960s was an important result which related empiricaly to personal epistemological belief. Perry's research results determined that the college students have complex knowledge, interactive relationships with knowledge and processes in which knowledge is accepted and conducted or rejected. Starting from the first level, the college students are dualistic in

keeping truth and error, have absolute views, and believe that truth can be known from the teacher's communication role. This first-year student believes that simple knowledge and unchanging facts are taught by people who know better. As time goes by, students become more knowledgeable and more realistic in believing knowledge which is complex and tentative from the results of thoughts and empirical events. Perry hypothesized eight developmental positions and classified them into four categories which belong to the dualistic thinking of students in the early stages to relativist thinkers by the end of the fourth year of research (Ren, 2006).

The results of Perry's research, for example, found that the students changed their belief about knowledge in several phases, namely: from simple, permanent and unchanging knowledge, obtained from authority, to the belief in more complex and changing knowledge (tentative), obtained from thought processes, empirical events, and enriched by the time movement to be more mature. More than 30 years, research on the epistemological belief has attempted to ensure aspects of the relationship between the knower and what can be known about knowledge in an academic setting.

The epistemological belief related to how people's beliefs about how knowledge occurs, how much knowledge is acquired, where it is obtained, and how knowledge is constructed and evaluated. Furthermore, the focus of personal epistemological research is how individuals construct knowledge concepts and how to know which concepts are then used in developing an understanding of the world (Hofer, 2001).

Schommer (1990) stated that epistemological beliefs require what students believe about the nature of knowledge and believe about learning. Belief about knowledge consists of three dimensions. First, knowledge comes from authorities or experts such as teachers, lecturers or reference books, compared to logic and thought. Second, knowledge is definite, absolute, unchanging, and not tentative. Third, a regular process. Jehng et al. (1993) explain that the dimension of the regular process, or what is called rigid learning, is a dimension of belief whether learning is a process that is passively accepted by individuals, or the process of formulating the fact that individuals independently develop their ideas. Furthermore, the belief about learning consists of two dimensions. First, quick learning. Second, innate ability. Innate ability is a level of belief that the ability to learn is innate, rather than acquired through learning (Jehng et al., 1993).

In the procrastination literature, Zarrinet et al. (2020) considered fear of failure as an important factor in academic procrastination. The college students who choose to avoid carrying out assignments are less likely to have positive experiences during the learning process and are more likely to experience many negative psychological things (Svartdal et al., 2020). Interpretively, this condition may be a natural result of underdeveloped epistemological belief (Baytelman et al., 2020; Merk et al., 2018; Rosman et al., 2018).

The procrastination appears to be a chronic academic pattern (J. R. Ferrari et al., 1992, 1995). It can have negative effects on emotions, academic achievement (Stead et al., 2010), social achievement, subjective well-being (Gueorguieva, 2012), sleep quality (Przepiórka et al., 2019), and even physical health (Klingsieck, 2013). Academic procrastination is a specific type of procrastination, a manifestation of learning delays (Zhang et al., 2010). It is commonly seen among secondary school, high school, and college students (Ghosh & Roy, 2017; Ziegler & Opdenakker, 2018), and produces many bad effects such as negative emotions, anxiety and depression, poor learning efficiency. lower academic self-esteem, and academic stress (Flett et al., 2016). Academic procrastination may increase from one year to the next in college (Bozgun & Baytemir, 2021). Steel (2007) stated that procrastination is detrimental to academic performance leading to lower grades and failure. Ziegler & Opdenakker (2018) linked academic procrastination to an increased health risk. Regarding the belief on knowledge, Hofer (2001; 2004) suggested that understanding the barriers to the

change and growth of the epistemological belief will be important for students. Since procrastination continues into adulthood, understanding the relationship between epistemological belief and procrastination at the college level is very useful for understanding procrastination at the professional level.

In addition to the epistemological belief require what students believe about the nature of knowledge and believe about learning (Sheehy et al., 2019; Winberg et al., 2019; Xenofontos, 2018), self-regulation is one of the important concepts in social cognitive theory which bridges external influences with the capabilities or capital possessed by humans, as the basis for carrying out purposeful behavior, thus enabling humans to have individual control over their thoughts, feelings, motivations, emotions, and behavior. Self-regulation is one of the important concepts in social cognitive theory. Bandura (2010) said that the self-regulation system bridges external influences with the capabilities or capital possessed by humans, as the basis for carrying out purposeful behavior, thus enabling humans to have individual control over their thoughts, feelings, motivations, and behavior. Based on this definition, self-regulation has an important role in human behavior. It can be interpreted as self-direction or self-control in acting. Self-regulated learning can be interpreted as "regulating or directing oneself in learning" or "learning by directing or self-regulating". Researchers use the term "learning based on self-regulation" to replace the term self-regulated learning, a term that is more efficient without reducing its meaning.

Zimmerman & Martinez-Pons (1990) proposed a formulation to explain learning based on self-regulation based on Bandura's triadic social cognitive theory. He said that students' efforts to regulate themselves in learning involve three determinants, namely the student's personal process, environment, and behavior. The application of learning strategies makes students be able to personally regulate their behavior and environment as well as regulate their metacognitive functions. The choice and use of strategies by students depends directly on their perception of their academic self-efficacy, and reciprocally through the feedback they receive. If the student's monitoring shows a deficiency in their performance, the student's self-efficacy will be low, and vice versa. if monitoring shows that the performance is effective, it will affect subsequent motivation and the choice of the used strategy. According to this triadic formulation, learning based on self-regulation is not an absolute functional state, but rather varies, depending on the academic context, the individual's attempts to self-regulate, and the outcome of behavioral performance.

The absence of the forced direction means that competent individuals must create conditions such as those among which are self-regulating (Kanfer et al., 2008). Meanwhile, individuals who do not have good self-regulation in themselves are more likely to procrastinate the various tasks they face and are easily tempted to do other activities that do not support the completion of their academic tasks such as playing games, playing more social media and so on.

Self-regulation has an important role in human behavior including academic procrastination behavior. The problems associated with procrastination and lack of self-regulation (Steel, 2007; Syapira et al., 2022) particularly in learning appear to be increasing. At the same time, it is expected that academic assignments are done on time and can be done structuredly and on time .

## Rationale of the Current Study

Cases of student academic procrastination have increased dramatically. This case occurs, especially in Islamic universities (Rahman, 2020). Discipline, creativity, and having a high work ethic are indicators of quality Muslim human resources and a very decisive foundation. Muslim students who are currently studying are potential competitors who will face a high level of competition, but if disciplined behavior is ignored such as frequent

academic procrastination, it will certainly be a problem for them, and can also be considered as an indicator that they are still cannot be expected to become human resources as expected. Therefore, academic procrastination in Muslim students is a problem that needs attention.

Based on the explanation above, it can be emphasized that procrastination is a complex phenomenon related to various aspects of human activity. Explaining the relationship between personal epistemological belief and academic procrastination would potentially explain the role played multifacetedly by knowledge belief, sometimes the procrastination process is detrimental. In addition, self-regulation in learning is also an important aspect which can explain academic procrastination. Although it has been studied several times and is closely related to academic procrastination, it is still rare to place its position as a mediator variable between epistemological belief and academic procrastination.

Understanding the relationship of epistemological belief require what students believe about the nature of knowledge and believe about learning and self-regulation in learning to academic procrastination would be advantageous since a basic for future causal or explanatory research. If they are significant encouragement for academic procrastination, so assessments which focus on changing or improving academic abilities will ultimately enhance personal and professional achievement talent.

### Hypotheses

H1. Belief about knowledge a direct effect on the self-regulation in learning
H2. Belief about knowledge has a direct effect on the academic procrastination.
H3. Belief about learning has a direct effect on the self-regulation in learning
H4. Belief abaout learning has a direct effect on the academic procrastination.
H5. Self regulation in learning has a direct effect on the academic procrastination.

## METHODS

### Research Participant

Participants in this study are students of the Islamic Guidance and Counseling study program, Faculty of Islamic Da'wah and Communication, Kudus State Islamic Institute. The technique of taking participants in this study is purposive random sampling with the reasons as stated by Hadi (1984) that the election of a group of subjects based on certain characteristics or traits that considered to have a close relationship with the characteristics or characteristics previously known population which the steps to take the subject as a sample are carried out by, first, determining where students come from the Islamic Guidance and Counseling study program. Second, students who have taken thesis and third are students who have taken thesis for at least two semesters. The number of participants is 277 students.

### Research Instruments

Four different scales were used in the data collection process. The scale is prepared based on the sumated rating method consisting of the five levels of assessment. The magnitude of the value ranges from 0 to 4. Prior to the distribution, the instrument has passed several adaptation stages, namely 1) forward translation, 2) item writing, 3) language testing, 4) field testing, 5) item selection, 6) contract validation and 7) final compilation.

### *The belief about the nature of knowledge*

The belief about the nature of knowledge is an individual's belief about the nature of knowledge which includes following aspects (1) authority/expert knowledge that it derives from people who know more/an expert, (2) certain knowledge, and (3) orderly process. Generally, it can be said that the higher the value obtained, the more naive the belief about their knowledge. The number of statement items on the knowledge's belief scale is 8.

Table 1. Participant characteristics (N=277)

| Variable | Percentage (N) |
|---|---|
| Gender | |
| Woman | 61.7 (171) |
| Man | 38.3 (106) |
| Age | |
| 22-23 | 35.4 (98) |
| 24-25 | 42.2 (117) |
| >26 | 22.4 (62) |
| Range of work for the current semester | |
| 2-4 semesters | 71.8 (199) |
| Over 4 semesters | 28.2 (78) |

Examples of items are; "*I like the class where the teacher before teaching determines the unit of learning program*", "*The answers in the reference book are very helpful because I am not sure of my own solutions*" and "*I feel comfortable when dealing with uncertain learning conditions*".

### The Belief About Learning

Meanwhile, belief about learning is an individual's belief in learning which includes; (1) quick learning and (2) innate ability. This epistemological belief is expressed by using an epistemological belief scale which is modified based on the epistemological belief scale developed by Jehng et al. (1993). Generally, it can be said that the higher the value obtained, the morenaive the belief about learning is. The number of statement items on the belief scale in learning is 6. Examples of items are; "*If I can't understand something quickly, I usually have difficulty in learning it as a whole*" and "*Students who have moderate achievement in SMP/MTs, will remain the same and achieve moderately when they are high school students.*".

### Self-regulation

Self-regulation in learning is a learning activity which is carried out by people actively both motivationally, metacognitively, and learning behavior. This variable is revealed by using a learning scale based on self-regulation with the dimensions of motivation, metacognition and behavior as proposed by Zimmerman (1989). Overall, the learning scale based on self-regulation is 30 items, with 11 items for the motivation dimension. Examples of items are; "*If I plan something, I'm pretty sure I can carry it out.*" The metacognition dimension consists of 9 items, examples of which are; "*To produce a good work, I determine every step in the preparation*". Meanwhile, the behavioral dimension consists of 10 items. Examples of items are; "*The biggest problem for me is hard to begin my ta*".

### Academic procrastination

Academic procrastination is the tendency of people to respond to the final lecture they have by keeping a long time to start or finish the performance intentionally to carry out other unnecessary activities to complete assignments, referring to the academic procrastination theory of Solomon and Rothblum (1984). The indicators are the delay in starting to complete the performance in having the task, the slack in doing the task, the time gap between the plan and the actual performance in doing the task and the tendency to do other activities which are considered having more enjoying and pleasure. Overall, the academic procrastination scale is 32 items. Examples of items are; "*In preparing the lecture task which has deadline, I often waste the time by doing others*" and "*I always say I will do it tomorrow*".

Table 2.  Results of validity and reliability of research instruments

| Variable | Standardized loading | α |
|---|---|---|
| Belief about Knowledge | | .853 |
| Centain Knowledge | .805 | |
| Omniscient | .824 | |
| Simple Knowledge | .755 | |
| Belief about Learning | | .843 |
| Innate ability | .773 | |
| Quick learning | .826 | |
| Self Regulation | | .871 |
| Motivation | .833 | |
| Metacognition | .918 | |
| Behavior | .733 | |
| Academic Procrastination | | .869 |
| Delay in starting to complete the performance | .912 | |
| Slowness in doing the task | .889 | |
| Time gap between the plan and the actual performance | .726 | |
| Tendency to do other activities | .566 | |

Table 3. Description of research data

| Variables | N | Min | Max | M | SD |
|---|---|---|---|---|---|
| Belief about knowledge | 277 | 0 | 32 | 21.17 | 6.949 |
| Belief about learning | 277 | 0 | 12 | 7.98 | 2.475 |
| Self-regulation | 277 | 0 | 120 | 67.77 | 27.362 |
| Academic Procrastination | 277 | 10 | 116 | 82.54 | 20.669 |

Table 4. The Result of Causality Test Regression Weight

| Variables | Estimate | SE | CR | P |
|---|---|---|---|---|
| Belief about knowledge → self-regulation in learning | .157 | .071 | 2,203 | .028 |
| Belief about knowledge → academic procrastination | -.157 | .047 | -3,314 | .000 |
| Belief about learning → self-regulation in learning | .199 | .097 | 2,053 | .040 |
| Belief about learning → academic procrastination | -.147 | .063 | -2 | .019 |
| Self-regulation in learning → academic procrastination | -.097 | .045 | -2 | .030 |

**Validity test**

Validity test is done through unidimensionality test on each construct with confirmatory factor analysis. Based on the results of confirmatory analysis, it is found that the fit criteria value has been achieved well. The reliability Alpha Cronbach calculation result of the belief about knowledge gets .853, while belief about learning gets .843, self-regulation in learning reliability is .871, and academic procrastination reliability is .869. Thus, all variables get quite good reliability above .70, so it can be stated that all used variables have met the reliability requirements. A summary of the validity and reliability test results of each research instrument can be seen in table 2.

**Data Analysis Techniques**

The used technique to analyze the data in this study uses *Structural Equation Models* Models. For the analysis needs, the Analysis of Moment Structures (AMOS) software program is used.

## RESULTS AND DISCUSSION
**Results**

Before analyzing the model, descriptive research data for each scale will be presented first. The statistical description of the research data is summarized in table 3. Based on table
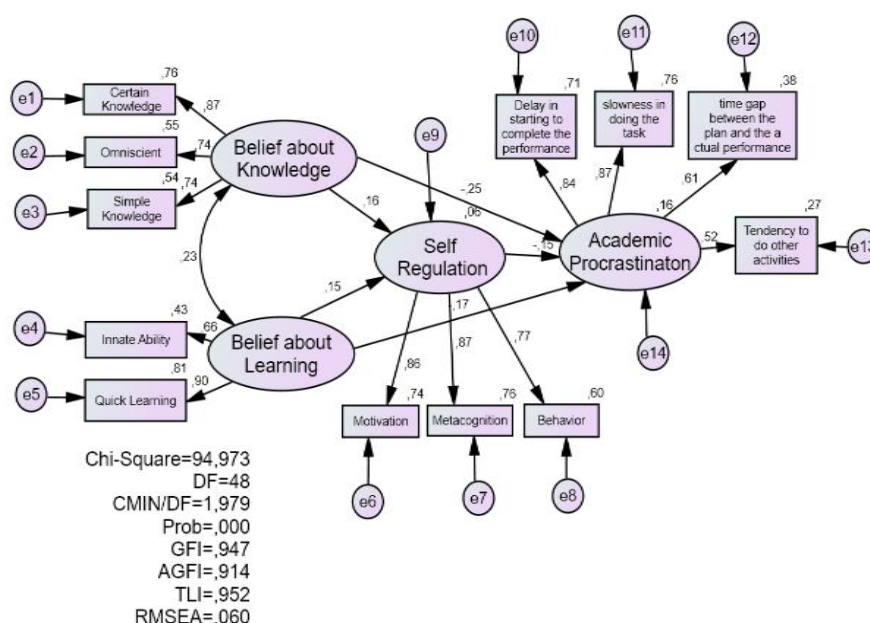
Figure 1. Analysis Results of the Model of Epistemological Beliefs and Self-
regulation's Influence on Student Academic Procrastination

2, it is known that the belief about knowledge variable has an empirical score of 21.17, with a standard deviation of 6.949, the belief about learning variable has an empirical score of 7.98, with a standard deviation of 2.475, the variable of self-regulation in learning has an empirical mean score of 67.77, with a standard deviation of 27.362, and the academic procrastination variable has an empirical mean score of 82.54 with a standard deviation of 20.669.

Before analyzing the structural equation model wholly, the unidimensionality test for each construct is carried out using confirmatory factor analysis. Based on the results of the confirmatory analysis on each variable, it shows that the value of the fit criteria is achieved well. Likewise, the significance values of the estimated *standardized loading parameters* are all above .05.

After some of the proposed conditions are met, the next step is to test the hypothesis in the form of testing the theoretical model data with empirical data as a whole.

Based on the analysis results of the initial structural model, it shows that the Chi-Square is 89.285 (DF = 48, p = .000), CMIN/DF = 1.860, GFI = .920, AGFI = .870, TLI = .944 and RMSEA = .070. That the criteria for several model acceptance conditions have been met properly except for the p-value which is still below .005. Because the other criteria have been met, it is decided not to reprocess or repair. The results of the analysis can be seen in

Estimation of *loading factors* or *lambda value* which is an evaluation of the results of the regression weights between latent variables and degrees of freedom (df), CR value or t-count (with a significance probability value of .05), can be known after being analyzed through AMOS statistics program assistance. The results of the causality test regression weights are presented in table 4.

From table 3, it is known that the variable of belief about knowledge has a significant positive effect on self-regulation in learning (r = .157, p = .028), the variable of belief about knowledge has a significant negative effect on academic procrastination (r = -.157, p = .000). The variable of belief about learning also has a significant positive effect on self-regulation in learning (r = .199, p = .040). The variable of belief about learning has a significant negative effect on academic procrastination (r = -.147, p = .019), the variable of self-regulation in

learning also has a significant negative effect on academic procrastination (r = -.097, p = .030).

Based on the results of the analysis above, it can be concluded that the variables of belief about knowledge have a significant positive effect on self-regulation in learning and have a negative influence on academic procrastination. The variable of belief about learning has a significant positive effect on self-regulation in learning and has a significant negative effect on academic procrastination. Moreover, the variable of self-regulation in learning also has a significant negative effect on academic procrastination.

## Discussion

This study aims to examine the theoretical model of epistemological beliefs' influence in the form of belief about knowledge and belief about learning as well as self-regulation on academic procrastination.

Based on the analysis results, it is found that the variable of belief about knowledge has a significant positive effect on self-regulation in learning and had a negative effect on academic procrastination. The variable of belief about learning has a significant positive effect on self-regulation in learning and has a significant negative effect on academic procrastination. Moreover, the variable of self-regulation in learning also has a significant negative effect on academic procrastination.

Previous research results related to academic procrastination influenced by fear of failure (Abdi Zarrin et al., 2020; Steel, 2007; Unda-López et al., 2022). Fear of failure associated with self-efficacy (J. R. Ferrari et al., 1992) may represent students' insight that tasks in the learning process obviously involve belief about knowledge and learning or epistemological belief itself. Research on task procrastination (J. R. Ferrari et al., 1995; Hess et al., 2000; Senécal et al., 1995; Solomon & Rothblum, 1984) reflects epistemological beliefs.

Based on this study results indicate that students who believe that knowledge is certain (certain knowledge), absolute, unchangeable, and not tentative,that knowledge comes from people who know more or are expert (authority or expert knowledge) such as lecturers or reference books and that the way to get knowledge is an orderly process or simple knowledge tends not to do academic procrastination. This can happen because students are obedient in carrying out what the lecturer says and doing it.

On the other hand, students who have sophisticated epistemological beliefs, who tend to believe that knowledge is tentative, and do not believe that knowledge is certain and changeable, that knowledge comes from the construction of one's own thoughts through the process of formulating personal facts independently tends to do academic procrastination. This phenomenon can be explained that if lecture assignments are considered challenging or difficult because of the complexity of knowledge, then epistemological beliefs can affect academic delays in starting or completing work. As an illustration related to task procrastination and naive epistemological beliefs, Ferrari et al. (1992) reported that task avoidance is a major motivator for procrastination for college students.

In addition, people with naive epistemological beliefs may be associated with perfectionism. Perfectionist students prefer to procrastinate because of the understanding that knowledge is complex, process-oriented, changing, and comes from oneself. Due to their more mature epistemological beliefs and their consistent goal of optimizing all aspects of learning, these people procrastinate due to perfectionism and delay experience in starting assignments due to the high learning process.

Meanwhile, it is likely unrelated to perfectionism, it may also be rooted in mature epistemological beliefs. Due to the results of several studies on procrastination regarding skill,

time, and effort problems of more or lack of independent learning (Ghosh & Roy, 2017; Hailikari et al., 2021; Hong et al., 2021).

The students who have a belief about the nature of learning which can be done quickly and to understand something is very dependent on the first time learning it and requires innate ability or skills has lower academic procrastination, than the students who believe that learning is through a process of hard work. As students used to the "easy life" or at least minimal academic effort is required at lower levels of education, then when they are in college, the previous belief that knowledge should be simple and easy to learn will be possible in college, and will think it can be a pulse not to procrastinate at the next school.

Schommer (1990) argued that people's beliefs about how much time they take to achieve a goal, complete or finish a task are significant to epistemological beliefs about the nature to obtain it. The epistemic dimension of "fast learning" includes one belief about learning which can occur through a gradual process or occur quickly. On dimension of fast learning, students have a perspective which believes that to understand something is very dependent on the first time learning it and if a material is tried to be studied seriously, it will experience a kind of confusion (Jehng et al., 1993; Schommer-Aikins, 2004).

This study also shows that self-regulation in learning also has a significant negative effect on academic procrastination. It means that the higher the student's self-regulation, the lower the academic procrastination. That the way students regulate academic behavior has a significant effect on the extent to which students procrastinate. This study results indicate that the high procrastinators exhibit a lack of self-regulation in the three regulation areas: cognition, motivation, and behavior proposed in Pintrich's (2000) self-regulation model (Cahyani et al., 2019). This is consistent with the results reported in several recent studies that low self-efficacy for self-regulation is the strongest predictor of procrastination tendencies (Syapira et al., 2022; Ziegler & Opdenakker, 2018).

Students have not been able to avoid procrastination in achieving targets due to poor time management, inability to set priorities, too many tasks to be completed in a certain time, anxiety about tasks which make a lot of time spend thinking about what to worry about instead of doing them, difficult concentration, not knowing what is needed, feeling too pressured by tasks, thinking too much about failure or not being able to meet the expected standards, and fear of success.

## Implications

Academic procrastination is a behavior which is detrimental ones. Some disadvantages of academic procrastination are that it makes the following tasks pile up, although tomorrow there are still other tasks to be done. The more there are piles of tasks, the more people are lazy to do. When going to do the task, it makes them feel like they are running out of time. In addition, the given tasks and not complete yet make other people's assessments not good. It could even reduce confidence in the ability of the procrastinator.

This research has implications for the importance of guidance and counseling, especially in counseling services in universities. The data from this study came from the respondents of Islamic guidance and counseling students. Considering the impact of the case of academic procrastination which is a problem of epistemological belief and self-regulation in learning, it means that it is important to provide counseling services on aspects of developing more sophisticated epistemological beliefs and about self-management in good learning in college students as an effort to minimize academic procrastination.

## Limitations and Sugestions

This study has several limitations such as the research theme is approached only with a quantitative approach model. It is recommended to further deepen the findings in the field through

experiments, qualitative methods, or mixing methods which combine quantitative and qualitative approaches integratedly. It is expected to provide more information about the studied themes. In addition, the sample of this research is only limited to certain study programs where climate and institutional management can have an effect. Therefore, it is highly recommended to expand the population and sample in order to get more comprehensive illustrations and factors which influence academic procrastination.

## CONCLUSIONS

This study is to examine the effect of epistemological belief which consists of belief about knowledge and learning and self-regulation in learning on academic procrastination. This study results indicate that belief about knowledge has a significant positive effect on self-regulation in learning and has a negative effect on academic procrastination, belief about learning has a significant positive effect on self-regulation in learning and has a significant effect on academic procrastination, and self-regulation in learning also has a significant negative effect on academic procrastination.

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## AUTHOR CONTRIBUTION STATEMENT

The authors contributed equally to the completion of this research.

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